Rhodora

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NEW ENGLAND BOTANICAL CLUB.

Conducted and published for the Club, by

BENJAMIN LINCOLN ROBINSON Editor-in-chief.

FRANK SHIPLEY COLLINS
MERRITT LYNDON FERNALD
HOLLIS WEBSTER } Associate Editors.

WILLIAM PENN RICH
EDWARD LOTHROP RAND } Publication Committee.

VOLUME 9.

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RIBES VULGARE AND ITS INDIGENOUS REPRESENTATIVES IN EASTERN NORTH AMERICA.

M. L. Fernald.

The common Red Currant (*Ribes vulgare*) of our gardens has become well established along fence-rows, in roadside thickets, in open woods near towns, and in other places where its seeds have been easily spread, by birds and other agents, from the cultivated shrubs. In these half-wild habitats the plant has thus far shown little or no tendency to vary from the Old World type from which it was derived.

In low coniferous forests and mossy swamps and in subalpine districts of New England and eastern Canada, however, where the commonly cultivated European *Ribes vulgare* is as yet unknown, there are two indigenous red currents which have been passing as identical with or scarcely separable from the introduced plant of the gardens. These plants have several characters in common by which they are readily distinguished from the cultivated shrub. *R. vulgare* is usually upright, bearing numerous leafy tufts more or less mingled upon the old wood with the flower-bearing shoots. The blades of the mature leaves are 3.5 to 6.5 cm. broad, somewhat broadened upward, the lobes mostly short-ovate, the middle one rarely broader than long. The pedicels are mostly smooth and glandless, in one form only soft-pubescent. The rotate calyx is greenish-yellow, its oval lobes abruptly narrowed below the middle and the petals are narrowly wedge-shaped. At the base of the calyx, between the stamens and the slightly-cleft style, there is a high but narrow obtusely scalloped ring.[1]

[1] As recently shown by Professor Janczewski, two European species have been passing as *Ribes rubrum*. One, the true *R. rubrum* L., with its "*habitat in* Sueciae *borealibus*," has the calyx somewhat cup-shaped, brown or mottled with red and destitute of a disk. This species so far as known to the writer is not found wild in America. The other, *R. vulgare* Lam., with the flat calyx yellowish green and bearing a prominent disk, is the common species of cultivation. (See Edouard de Janczewski, Comp. rend. acad. franc., cxxx. 1890, 588; and Bull. Acad. Cracovie, Janvier, 1906, 3.)

In the indigenous shrubs of our northern forests and mountain-slopes the stems are decumbent or loosely straggling or reclining, often rooting freely where they touch the ground. The leafy shoots are produced chiefly from terminal buds while the numerous racemes appear below the leafy tips along the otherwise naked old wood. The blades of the mature leaves are 5 to 10 cm. broad, the sides nearly parallel, the lobes mostly broad-deltoid, the middle one usually broader than long. The pedicels are more or less covered with reddish or yellowish glands. The calyx is smoke-color or dull purplish, its segments very broadly cuneate, and the petals of similar outline. At the base of the calyx, between the stamens and the deeply-cleft style, there is a low and broad pentagonal disk.

In all their essential characters the indigenous shrubs are uniform, but while the plants of one region have the leaves bright green and glabrous or glabrate upon both surfaces, those of other localities are whitened beneath with tomentum. Whether this production of pubescence is due to peculiarities of the soil such as have been pointed out in the case of *Ribes oxyacanthoides*, var. *calcicola* [1] it is not now possible to state with certainty. It is, however, significant that the only phase of the plant known to the writer from the granitic mountains of Quebec and northern New England — Table-topped Mountain, Katahdin, the White Mountains, etc.— is the shrub with glabrous or glabrate leaves; plants from the humus of woodlands and swamps where the characteristic rock is more or less calcareous have the veins on the lower surfaces of the leaves somewhat ciliated with inconspicuous hairs — for example, specimens from low woods and Arbor-Vitae swamps in Rimouski County, Quebec, northern Maine and northern Vermont; and the shrubs which have unquestionably grown in strongly calcareous soils — specimens, for instance, from crevices of calcareous slates at Fort Kent and at Brownville, Maine — retain to maturity a soft coat of whitish tomentum. Most herbarium labels unfortunately give no information upon these points and further observations are necessary before we can state finally that the two extremes of our indigenous red current are due to local soil-conditions. Both in the field and in the herbarium the two plants are notably different in aspect, the one with quite green foliage, the other with the leaves strongly whitened beneath.

[1] Fernald, Rhodora, vii. 155 (1905).

The shrub with the leaves whitened and permanently tomentose beneath is the plant described by Pallas from northern Asia as *Ribes triste*, and later redescribed by Maximowicz as *Ribes rubrum*, γ *subglandulosum*, from Siberia, Mandshuria and the colder regions of America. The other, with the mature leaves glabrous or at most ciliate along the nerves beneath and green on both surfaces, is well matched by Michaux's material of his *R. albinervium* described from Canada ("ad amnem *Mistassin*"). The characteristics and distribution in eastern America of the smooth-fruited red currents may be briefly stated as follows:—

RIBES VULGARE Lam. Suberect shrub: leaves mostly cordate, slightly pubescent beneath or glabrate; the mature blades 3.5 to 6.5 cm. broad, broadened upwards, 3–5-lobed, the lobes mostly short-ovate: racemes spreading in anthesis, drooping in fruit, 3 to 5 (becoming 7) cm. long: the rachis glabrous, though often glandular: the pedicels mostly glandless: calyx yellow-green; its segments oval and abruptly narrowed below the middle: petals narrowly cuneate: disk between the stamens and the slightly-cleft style a high narrow ring with round-scalloped margin: fruit plump and juicy.— Encyc. iii. 47 (1789); Janczewski, Compt. rend. acad. franç., cxxx. (1890) 588, and Bull. Acad. Cracovie, Janv., 1906, 3. *R. rubrum*, var. *sativum* Reichb. Fl. Excurs. 562 (1830). *R. rubrum*, most authors, not L. Common in cultivation and frequently escaped and established in fence-rows, thickets and open woods. Naturalized from Europe.

R. TRISTE Pallas. Straggling or reclining, the branches often rooting freely: leaves somewhat heart-shaped, the mature blades 5 to 10 cm. broad, the sides nearly parallel, the lobes mostly broad-deltoid, permanently white-tomentose beneath: racemes drooping, 3.5 to 9 cm. long: pedicels mostly glandular: calyx smoke-color to purplish; the segments broadly cuneate or subrhombic, as broad as or broader than long: petals broadly cuneate: disk a low broad pentagon: style deeply cleft: fruit mostly small and hard.— Pall. in Nov. Act. Acad. Petrop. x. (1797) 378); Janczewski, Bull. Acad. Cracovie, Janv., 1906, 3. *R. rubrum* of many authors, not L. *R. rubrum*, var. *subglandulosum* Maxim. Bull. Acad. St. Petersb. xix. 261 (1874). Cold woods, swamps, and subalpine regions, Newfoundland to Alaska, south to Maine and Vermont, perhaps confined to regions of pronouncedly calcareous soil. Also in Siberia and Mandchuria.

Var. **albinervium** (Michx.) Similar, but with the leaves glabrous or sparingly pubescent beneath when young, soon glabrate. *R. albinervium* Michx. Fl. i. 110 (1803).— More common, extending south to Nova Scotia, central New Hampshire, southern Vermont, Michigan, Wisconsin, etc.

GRAY HERBARIUM.

CONNECTICUT RUBI.

WM. H. BLANCHARD.

THIS paper presents some of the facts obtained and conclusions reached by me during ten weeks spent in Connecticut searching out and studying its Rubi, more especially its blackberries. Visits of a week or more each were made in August, 1903, in July, 1904, and in June and August, 1905; and five weeks in June, July, August and September, 1906, were devoted to the work. Southington and Plainville were pretty thoroughly searched and much was done in the surrounding towns especially in Bristol, New Britain, Newington, Farmington, West Hartford, Berlin and Wethersfield. Trips were taken to New London and Norwich, Stamford, Winsted, and Somers, and numerous shorter ones were made. Mr. C. H. Bissell and Mr. Luman Andrews of Southington, Mr. W. B. Rossberg of New Britain and Dr. C. B. Graves of New London very kindly aided by visiting localities with me and exhibiting specimens.

RUBUS OCCIDENTALIS L. Black Raspberry. Abundant in all parts of the state. It probably thrives no better anywhere than in Connecticut, which is far enough south for it to be at home on the highest land. The fact does not seem to be generally known that this is a comparatively southern species and is found in Northern New England like the white oak and white pine only in favored places, occurring rarely in the high or northern parts.

R. STRIGOSUS Michx. Red Raspberry. Abundant in all parts of the state. While *R. occidentalis* is a comparatively southern plant, *R. strigosus* is a northern plant and it fruits very poorly in Connecticut.

R. NEGLECTUS Peck (*R. occidentalis* × *R. strigosus* Austin). Purple Raspberry. This occurs occasionally and is easily recognized when ripe. It may be briefly described as a red raspberry growing on a black raspberry bush. The fruit is soft and loosely held together like the red raspberry, but there is enough black mixed with the red in its color to make it purple. The cane is long and recurved and it tips as readily as the black raspberry. Careful examination shows that in all its characters it is an intergrade between *R. occidentalis* and *R. strigosus* and I have never failed to find both of them growing with or near it. It seems probable, however, that such proximity of the parent species is not without exception.

R. ODORATUS L. Flowering Raspberry. Mulberry. Occasional in most parts of the state but nowhere common. Rare in the southeastern part, frequent in some sections in the southwestern part. It seems to prefer rocky woods and thrives among the loose stones at the foot of ledges, but is sometimes seen in fence-row hedges in cleared land.

R. TRIFLORUS Richardson. Rare in some places but generally distributed. Prefers damp swampy woods.

R. CUNEIFOLIUS Pursh. This species, very distinct and agreeably constant in its characters, occurs in no other New England state. Its dwarf growth and numerous strong hooked prickles make the name "ankleberries" very appropriate. In southern New Jersey I found it called "hog blackberry." The fruit is cylindrical, large and fine-flavored. Here it is not confined to sandy soil. East of the Connecticut River it is known to occur in but one section, namely, the towns of Chatham, Colchester and Portland. West of the Connecticut River it has been found as far north as Farmington and as far east as Guilford. It seems to be occasional in some places and frequent in the southwestern quarter of the state.

R. ALLEGHANIENSIS Porter. (*R. nigrobaccus* Bailey.) Sow-teat Blackberry. This is *the* high blackberry here and is abundant nearly everywhere. No other blackberry has such a delicious, spicy, aromatic taste, and no other of all our wild berries except the strawberry approaches it in excellence. Its great number of drupelets makes it very seedy. Its long, slender, tapering shape has suggested its two most characteristic names — Sow-teat and Sheep-teat.

Odd forms of this species turn up everywhere. They seem to be local mostly. Dr. Graves very kindly took me to the station where

R. nigrobaccus, var. *Gravesii* Fernald grows. In its immediate vicinity good normal plants were seen. This variety from its yellow color, poor fruit and general sickly appearance seems to be a pathological variation. If these plants were removed to a more favorable home, it seems probable that they would soon be normal.

R. Andrewsianus Blanchard. Rhodora viii. 17 (1906). Abundant near the sea, in the river valleys and on the sand plains. In these parts of the state it largely takes the place of *R. Alleghaniensis*. It is a southern species reaching its northern limits here, where it seldom bears a good crop; but in southeastern Pennsylvania, Maryland and Virginia, where it is the common high blackberry, the crop is abundant. The berries are very large and are not "seedy." Many of them are much higher than broad; they are always loose-fruited, with large "grains" or drupelets.

R. floricomus Blanchard. Am. Bot., Nov., 1905. The area on which this species is known to grow is the southeastern part of Southington and on Meriden Mountain. It is distinct enough and covers sufficient territory to make it probable that it will be found in other places.

R. frondosus Bigelow. Probably occasional throughout the state and frequent in some places. Discussed in Rhodora, Nov., 1906. Stations found: Southington on the New Britain pipe-line, 100 rds. east of Queen St., July, 1904, a single plant; Plainville at the railroad overpass, August, 1905, a small clump; 1906, Plainville at White Oak, Southington at Shuttle Meadow, Farmington at the bridge and reservoir, West Hartford, Rocky Hill, near Norwich, and abundant on Cedar Hill near the southeast corner of Cedar Hill Cemetery in the northwest corner of Wethersfield.

R. procumbens, Muhl. (*R. Canadensis* Gray's Manual. *R. subuniflorus* Rydberg). Running Blackberry, Dewberry. Common throughout the state. This species presents numberless forms some of which resemble *R. invisus* Bailey and *R. Baileyanus* Britton, two species of dewberry whose status is uncertain at present. *R. subuniflorus* Rydberg seems to be a decumbent, depauperate form of *R. procumbens*. There is little that is constant in most of the forms of this species and what final disposition of them botanists may make is problematical.

R. recurvans Blanchard. Rhodora vi. 223 (1904) and viii. 152 (1906). Frequent, often abundant, in Central Connecticut and

probably found throughout. A form with thicker dark green leaves also occurs whose status is still uncertain.

Rubus Rossbergianus, n. sp. Plants glandless, pubescent, 1 to 2 feet high, stems large at the base, recurving, 3 to 5 feet long, the prostrate end often tipping; prickles of moderate size. Leaves large, dark green, rather thick, 5-foliate; leaflets broad, those on old canes remaining till fall. Inflorescence cymose, pedicels subtended by narrow leaves; flowers large; fruit short-cylindrical ½ in. high, productive.

New canes. Stems erect at first, 1 to 2 feet high, hard, green, terete, glabrous and glandless, often branched, soon recurving, becoming 3 to 5 ft. long, often tipping. Prickles ⅛ to $\frac{3}{16}$ in. long, slender, straight, strong, slanted slightly backward, numerous, 20 to the inch of stem, not noticeably in lines. Leaves large, the earlier 6 to 7 in. long by 5 to 6 in. broad, later leaves smaller, rather thick, 5-foliate, dark green with appressed hairs on the upper surface, lighter beneath and very pubescent. Leaflets broad, outline entire, long taper-pointed, finely and doubly serrate-dentate; the middle leaflet very broad and cordate, the side leaflets broad and ovate or oval, the basal leaflets broad and cuneate at the base. Petiole and petiolules large, glabrous, grooved, prickles numerous, short and hooked; the petiolule of the middle leaflet 1 in. long, the side ones one-third as long and the basal leaflets sessile.

Old canes. Stems hard, greenish brown, badly killed back, prickles intact. New growth consisting of short leafy branches mostly bearing inflorescence, one to four from each old leaf-axil, 3 to 6 in. long. Axis zigzag, slightly pubescent, prickles few, hooked. Leaves one to three, trifoliate on the main axis, and numerous unifoliate leaves above on the inflorescence making it rosette-shaped. Leaflets and unifoliate leaves mostly narrow, occasionally broad, coarsely serrate-dentate and toward the points deeply dentate; in color, texture and pubescence like those on new canes. Inflorescence cymose, axis short, about 8-flowered, the pedicels subtended by unifoliate leaves. Flowers appearing June 15 or earlier 1¼ to 1½ in. broad, petals oval, one-half as wide as long. Fruit ripening very early short-cylindric, about ½ in. high, composed of large drupelets. Edible, sweet and sought by berry-pickers. Leaves persisting till fall.

Type station: Southington, Connecticut, 25 rods southeast of the junction of Lazy Lane and Queen Street. Abundant in Southington

and the surrounding towns. Equally typical plants are abundant in Manton, Graystone and Graniteville near Providence, Rhode Island. Fairly representative plants were also seen in Canton, Lexington and Palmer, Massachusetts.

This plant can be placed with the *Recurvans* class, and in appearance it is intermediate between *R. recurvans* and *R. procumbens*. It differs from *R. recurvans* in having thicker and dark green leaves, green stems, a more prostrate habit, and the rosette-shaped collection of unifoliate leaves subtending the pedicels is very noticeable.

Mr. W. B. Rossberg, whose name is associated with this species, is a well-known local botanist of New Britain, Connecticut, who is also an enthusiastic student of local geology.

R. SETOSUS Bigelow. (*R. nigricans*, Rydberg). Frequent in moist situations, borders of swamps, ponds and streams and sometimes in dry ground. Described fully in RHODORA, Nov., 1906.

Rubus semisetosus, n. sp. Plants decumbent or erect, stems mostly round, hard, glandless, with numerous slender, often reflexed bristle-prickles; leaves on new canes 5-foliate, narrow-ovate, approaching obovate, rather long-pointed; fruit poor; flowers appearing late.

New canes. Stems decumbent or erect, 1 to 3 feet long generally terete, reddish, hard, glabrous and glandless, rarely branched. Prickles numerous, 20 to 30 to the inch of stem, the slender or bristle-shaped prickles often $\frac{3}{16}$ in. long, perpendicular to the stem or more often very retrorse. Leaves of moderate size, $3\frac{1}{2}$ to 5 in. wide, 5-foliate, not thick but firm in texture, dull green and nearly glabrous on the upper surface, paler and more or less pubescent below. Leaflets oval or often appearing obovate, rather long taper-pointed, outline entire, serrate and serrate-dentate, more or less doubly; the middle one about twice as long as wide, often rounded at the base, the others much narrower and cuneate. Petiole and petiolules grooved, nearly glabrous; slender bristle-prickles weak and retrorse; petiole long; the petiolule of the middle leaflet $\frac{3}{4}$ in. long, those of the side leaflets one-third as long and the basal leaflets sessile.

Old canes. Stems mostly decumbent, often prostrate, much killed back, prickles greatly impaired. New growth consisting entirely of leafy fruit-branches 4 to 6 in. long tipped with inflorescence, one from each old leaf-axil. Axis zigzag, somewhat pubescent, bristles few. Leaves 3-foliate or rarely a few 5-foliate, few unifoliate, leaflets narrow; in color, texture and pubescence much like those on new

canes. Inflorescence a short raceme; pedicels slender, pubescent, often branched; bearing as well as the calyx a few glanded hairs or weak bristles, one or both or neither. Flowers most often appearing late, about 1 in. broad, petals long and narrow, two or three times as long as wide. Fruit poor, of a few drupelets, or sometimes maturing as fine globose berries $\frac{1}{3}$ in. in diameter.

Type station: The sand plains of Plainville and Southington, Connecticut. An abundant plant in Southern New England, growing mostly on dry ground and especially on sandy soil.

This plant is readily distinguished from *R. setosus* Bigelow into which it probably intergrades by having hard stems with comparatively few bristles and no glands, and in having the inflorescence nearly naked, the leaves, fruit and flowers on each being much alike.

Rubus ascendens, n. sp. Plants erect, 2 to 4 feet high, sometimes branched, angled; prickles numerous, rather strong; glandless or with a few glands on the inflorescence; leaves on new canes 5-foliate, often upward-turned; leaflets long-pointed, ovate or oval; flowers late; fruit small, often valuable.

New canes. Stems erect, 2 to 4 feet high, generally angled, green or reddish, hard, glabrous and glandless, often branched. Prickles numerous, 15 to 20 to the inch of stem, slender and spiny or strong bristle-prickles, often $\frac{3}{16}$ in. long with a slight backward slant. Leaves often large, 5-foliate, of firm texture, dark yellow-green and nearly glabrous on the upper surface, paler and somewhat pubescent, often quite pubescent below. Leaflets ovate or oval, often broad, long taper-pointed, outline entire, serrate or serrate-dentate; the middle one widest and rounded often cuneate at the base, the others narrower and cuneate. Petiole and petiolules large, grooved, slightly pubescent with slender retrorse prickles, the petiolule of the middle leaflet about $\frac{3}{4}$ in. long, the side leaflets short-stalked and the basal ones sessile.

Old canes. Stems green or green-red, prickles little impaired. New growth consisting of leafy fruit branches, 4 to 12 in. long generally one from each old leaf-axil. Axis of branch zigzag, slender, weakly armed, nearly glabrous. Leaves 3-foliate below, the upper unifoliate; leaflets wide or narrow, in color, texture and pubescence like those on new canes. Inflorescence a short raceme; pedicels slender, pubescent, otherwise naked or on many plants clothed with more or less weak bristles or glanded hairs one or both, with or without subtending unifoliate leaves or bracts. Flowers appearing rather

late, 1 in. broad or often broader, petals narrow, twice as long as wide. Fruit very variable, often consisting of a few drupelets, frequently bearing profuse edible fruit, which is globose, $\frac{3}{8}$ in. or over in diameter.

Type station: Southington, Connecticut, twenty rods west of the railroad bridge over the Qunnipiac River near the Plainville line. Abundant in Southington, Bristol, Plainville and neighboring towns and in Southern New England generally.

This species is intended to include not only the plants which closely resemble the type, but also many others which cannot be placed with any species yet described. They are too large, strong, erect, and fruitful as well as too strongly armed to be placed with *R. semisetosus*. These characters and the general appearance of the new canes indicate the relationship of these plants to the high blackberries especially to small forms of *R. Andrewsianus*.

R. HISPIDUS L. Common. The delicate forms predominate, though some peculiar ones occur. A careful examination would probably lead to the discovery of a great number.

Most of the Connecticut Rubi are included in the above enumeration but in nearly all localities odd forms are to be found that cannot easily be placed. Many of them seem to have no second station. Of the peculiar tall forms some have considerable resemblance to *R. Canadensis* L. and *R. pergratus* Blanchard but both of these species are rare so far as known, though there are considerable areas in the northeastern and northwestern parts of the state which botanists have examined but little where the plants in question may occur in greater number and be nearer normal.

WESTMINSTER, VERMONT.

NOTES ON CONNECTICUT PLANTS.— *Phaseolus perennis*, Walt. This species, which was lost sight of by our Connecticut botanists for many years, has been reported in recent volumes of RHODORA from three stations in the southwestern section of the state. Two of these stations are near the borders of salt marshes, while the third is adjacent to a "scarcely brackish" marsh. A new station, discovered by me Sept. 28, 1906, in the town of Franklin, is of interest as showing the species growing under different conditions, and also as extending its range sixty miles farther toward the east. This station is twenty

miles inland from Long Island Sound, and just below the brow of a hill which rises to an elevation of five hundred feet above the sea level. Here in a sheltered, sunny location, along the base of a low cliff, the plant has found a congenial home and exhibits great vigor of growth, many of the racemes being fifteen inches in length. The station follows the line of the cliff for several rods.

Hierochloe borealis, Roem. & Schultes. In Connecticut this is essentially a species of the coast, and it is seldom found elsewhere. It occurs, however, in several bogs and meadows in Franklin, and it is abundant in one of them. These stations are noteworthy from being twenty miles back from the coast, in a typical hill town. Specimens gathered here do not differ noticeably from those collected in saline situations. In Rhodora vi. 104, this species is reported from Willoughby, Vermont, where it is said to be rare.

Eatonia Dudleyi, Vasey. This species appears to be better represented in southern Connecticut than has been supposed to be the case. In Rhodora vii. 68, I called attention to its frequent occurrence about New Haven. It is equally frequent in southeastern Connecticut. On several tramps last June through Franklin and adjacent towns, I found it in nearly every locality where one would naturally look for *Eatonia*, and it was often the prevailing species of this genus. It is not wholly confined to woodlands, for it grows in profusion in one place beside the New London Northern Railroad, where there is absolutely no shade, the trees having been cut away several years ago. The plants at this station are robust and very pubescent.

Cuscuta compacta, Juss. This species grows along all the principal streams of Franklin, and is by no means rare here.— R. W. Woodward, New Haven, Connecticut.

NEWLY OBSERVED STATIONS FOR MASSACHUSETTS PLANTS.

C. H. Knowlton.

During the past season I have made many botanical excursions in various directions from Boston, with some very interesting results. Messrs. William P. Rich and H. A. Purdie have been my companions on several of these trips, and the plants mentioned below are all represented by specimens in my herbarium, while many are also in

the herbarium of Mr. Rich. The following plants seem particularly worthy of mention:

Eragrostis minor, Host. This introduced grass is very abundant in the crevices and along the inner edge of the sidewalk, on Chandler Street, Boston, near Castle Square. I also collected it on the Centralville dump in Lowell, in 1902.

Allium tricoccum, Ait. I discovered the foliage of this plant in May, 1906, in rich moist woods by Clematis brook, Waltham, near *Asplenium acrostichoides*, Sw. When I revisited the station on July 7 the leaves had withered and the flower-buds were beginning to open. There were hundreds of plants, and the large round heads of white blossoms were very conspicuous. The plant has also been collected in the neighboring Beaver Brook Reservation, by Mr. R. A. Ware.

Allium vineale, L. I found a few plants of this species in the edge of a cultivated field on Rag Rock, Woburn. It is to be hoped that this pest will not prosper here, but remain an unusual plant.

Quercus Prinus, L. A few trees grow in sandy soil on the shore of Little Quittacas Pond in Lakeville. It is very abundant in Sutton, Worcester county, where it is the predominant tree in the woods around Purgatory Chasm. It is also frequent in Webster and Dudley, but I have not seen it near Boston.

Celtis occidentalis, L. Several trees grow in a pasture in Waltham, near Waverley. I found them first before the leaves came out, and visited them again the last of May, just as they were going out of blossom. The leaves and twigs seemed much diseased from the work of insect parasites. Small trees in better condition grow on Mt. Tabor in Lincoln (*C. H. Knowlton and E. L. Shaw*).

Nasturtium sylvestre, R. Br. This rare crucifer is very plentiful around a green-house in Natick, where it seems thoroughly established.

Potentilla fruticosa. L. One bush I have seen in a grassy swamp in Woburn, another larger in a similar place in Amesbury. In the northern part of Groton it grows in great profusion. This station was given by Mr. C. W. Jenks in the Middlesex Flora.

Amphicarpaea Pitcheri, T. & G. I found this growing in considerable abundance at Oak Island, Revere, where it was collected by Mr. Rich in 1893. (Rhodora, i. 27.) In general appearance as well as in several minor details it is distinctly different from the common species. Later in the season it was found by Mr. H. H. Bartlett in great abundance on Horn Pond Mt. in Woburn, only a mile or two from Mr.

Rich's original station in Winchester. Mr. M. L. Fernald also reports it from Rhode Island. (RHODORA, viii. 221).

Apios tuberosa, Moench. Mr. Rich and I found very many fine fruiting specimens of this common plant along the shores of Lake Monponsett, Halifax. Its usual mode of reproduction seems to be by rootstocks and tubers.

Desmodium cuspidatum, T. & G. In open woods, Horn Pond Mt., Woburn; also in moist oak woods, Natick.

Desmodium sessilifolium, T. & G. This plant, occasional in Connecticut and Rhode Island, was first reported in Massachusetts from Middleboro by William Boott (1870), and from Lakeville in 1871. The Lakeville station was visited in 1899 by members of the New England Botanical Club, and again this year by Mr. Rich and myself. The plant is still abundant at this place, along the dry sandy roadside near Lake Assawompsett. We also found a clump of very large specimens in an old orchard two or three miles away, and a large quantity further south, along the causeway between Little and Great Quittacas ponds, in Rochester. The fruit of this species sticks even closer than that of the common kinds, and further search would probably show that the plant is well distributed over this flat sandy region, where it finds its northeastern limit. Mr. John Murdoch, Jr. tells me it is still abundant at Middleboro.

Ilex opaca, Ait. A few good trees grow in the woods at Halifax, but no fruiting specimens were observed.

Viola arenaria, DC. I found an abundance of this in a dry clearing in Ashburnham, Worcester county. I have never seen it in the Boston region.

Viola sagittata, Ait. Abundant in moist sandy field, Kendal Green, Weston. Also in a similar situation near Cambridge reservoir, Lincoln. (*C. H. Knowlton and E. L. Shaw.*)

Aralia trifolia, Dec. & Planch. Moist woods, Burlington. Tophet Swamp, Lexington.

Hydrocotyle umbellata, L. This plant, so abundant on Cape Cod, seems even more plentiful in the northern part of Plymouth county. Messrs. Rich, Purdie and I found the submersed form in abundance at Indian Head Pond, Hanson. In Lakeville, at Little Quittacas Pond, where the water had been drawn off we found a belt some three rods wide of the terrestrial form, nearly surrounding the pond. The rootstocks formed an interlacing network, and one shore had

been plowed for nearly half a mile to destroy this plant and the few others which grew with it.

Chiogenes serpyllifolia, Salisb. A small station in the Hanson cedar swamp. (*C. H. Knowlton and R. A. Ware*).

Leucothoe racemosa, Gray. I have found one bush by the Charles River in Natick. It is abundant in wet woods at Halifax.

Hottonia inflata, Ell. The latter part of June Mr. J. W. Huntington of Amesbury showed me the station for this plant which he reported in Rhodora, iii. 216. July 7 I found a few plants in a small brook in Waltham, and the next day I came across large quantities in the ditch beside the Willow Road, Belmont.

Lysimachia producta, Fernald. There is a fine colony of this on the sandy shore of Silver Lake, Halifax.

Sabbatia chloroides, L. Large quantities of this in Halifax bring the plant a little nearer to Boston than previous reports.

Asclepias obtusifolia, Mx. This plant, reported "not common" in the Middlesex Flora, is frequent in the towns of Chelmsford, Westford, Dunstable, Groton and Tyngsboro, where the light glacial gravel favors it.

Echinospermum Lappula, L. Abundant in roadside thicket, Groton; roadside, Winchester.

Linaria genistaefolia, Mill. I found a single plant of this rare waif, in good fruit and flower, on a railroad embankment in Groton. I do not know of any other station in New England.

Scrophularia leporella, Bicknell. I discovered a large clump of this well fruited, growing alone in a dry pasture at East Lexington, August 4.

Scrophularia Marilandica, L. There is a fine station for this on Concord Hill, Lexington, from which I collected good fruiting specimens Oct. 13. It was found here as early as 1903 by Miss E. L. Shaw. This place and Oak Island are the only stations known for it in the Boston region.

Galium boreale, L. I found some fine plants of this by a ditch in a mowing field, near Central Square, Woburn. It grew with all the assurance of a native, and there was no evidence of its being a garden escape.

Bidens comosa (Gray) Wiegand. Wet roadside, Warren, Worcester county.

Matricaria discoidea, DC. I found a fine specimen of this in

Winchester early in the summer. Mr. F. G. Floyd has also a station for this peculiar-smelling "pineapple weed" in West Roxbury.

Solidago sempervirens, L. Abundant in an open grassy swamp in Winchester, at an elevation of about 200 feet. I have also collected it on the East Lexington meadows.

Boston, Massachusetts.

THE VARIATIONS OF PRIMULA FARINOSA IN NORTHEASTERN AMERICA.

M. L. Fernald.

Primula farinosa in its broad sense is a plant of very wide range, the typical form occurring in northern and mountainous districts of Eurasia and North America, while some representative of the species is found in nearly all cooler parts of the globe, even in Antarctic South America. The plant of eastern North America is very generally called true *P. farinosa*, and in Engler's Pflanzenreich nearly all the American plants are united by Pax and Knuth with the Eurasian plant as *P. farinosa*, subsp. *eufarinosa* Pax, var. *genuina* Pax.[1] As shown in the Gray Herbarium, however, there is very little American material which is clearly identical with the Eurasian type of *P. farinosa*. Instead, most of the material from the northeastern United States and adjacent British America is of two seemingly endemic varieties, while in the Rocky Mountains is a third which may be looked for with some confidence on the mountains of eastern Quebec. These three varieties and the Eurasian type of the species may be distinguished as follows.

* Calyx in anthesis 3–5 mm. long; involucral bracts 3.5–6 mm. long.

P. farinosa L. Low, rarely 3 dm. high: leaves oblanceolate to narrowly obovate, *white-farinose* beneath: bracts lance-attenuate: *pedicels rarely equalling the calyx*: capsule 6–8 mm. long, slightly exserted.— Sp. i. 143 (1753).— Eurasia. Rare in America: examined only from Labrador and Newfoundland.

Var. americana Torr. Scape 1–2.5 dm. high: leaves oblanceolate

[1] Pax & Knuth in Engler, Pflanzenr, iv. Fam. 227, 83 (1905).

or spatulate, rather stiff, covered beneath with *sulphur-yellow* powder: bracts as in the species: *pedicels elongate,* often 2 to 5 times as long as the calyx: capsule 5–8 mm. long, much exserted.— Fl. i. 213 (1824). — Shores of Lakes Huron and Michigan, Ontario and Michigan.

* * Calyx in anthesis 6–8 mm. long: bracts 6–11 mm. long.

Var. **macropoda**, var. nov. Planta 1–4.5 dm. alta; foliis spathulatis vel anguste rhomboideo-ovatis longe petiolatis, subtus farinosis; bracteis lineari- vel lanceolato-attenuatis; pedicellis elongatis (1–5 cm. longis); capsulis 9–12 mm. longis exsertis.

Usually tall (1–4.5 dm. high): leaves from spatulate to narrowly rhombic-ovate, long-petioled, usually white-farinose beneath: bracts linear- or lance-attenuate, often involute in drying: pedicels mostly elongate (1–5 cm. long): capsule 9–12 mm. long, usually much exserted.—Labrador, Battle Harbor, July 18, 1891 (Bowdoin College Exped. no. 104): Quebec, Island of Anticosti (Pursh); wet limestone cliffs, Percé, August 17, 1904 (*Collins, Fernald and Pease*); banks of the St. Lawrence R., Matane, August 7, 1904 (*F. F. Forbes*); limestone cliffs and ledges, Bic, July 16, 1904 (*Collins & Fernald*), July 6–10, 1905 (*Williams, Collins and Fernald*), July 5, 1906 (*Fernald & Collins,* no. 243 — type): Nova Scotia, without locality (MacCulloch); dripping cliffs, Baxter's Harbor, July 10, 1900 (*F. G. Floyd*): Maine, Mt. Kineo, August, 1866 (*A. H. Smith*), September 27, 1887 (*G. G. Kennedy*): Keewatin, a small green-leaved extreme, below high-water mark, shore of Hudson Bay, latitude 56°, August, 1886 (*J. M. Macoun*): Saskatchewan, Carleton House (*Richardson*): Athabasca, "The Cascade," Athabasca R., June 15, 1892 (*Elizabeth Taylor,* no. 38): Mackenzie, Great Slave Lake (*Richardson*).

Var. **incana** (M. E. Jones), n. comb. Scapes 1–3.5 dm. high: leaves oblong- to narrowly rhombic-ovate, short-petioled or subsessile: bracts linear-lanceolate, obtuse or acutish: pedicels in anthesis mostly shorter than the bracts, in fruit slightly elongated (rarely 2 or 3 cm. long).— *P. incana* M. E. Jones, Proc. Cal. Acad., Ser. 2, v. 706 (1895). *P. americana* Rydberg, Bull. Torr. Cl. xxviii. 500 (1906).— Rocky Mts., Alberta to Colorado and Utah.

Gray Herbarium.

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